

we look closely into the matter, agamogenesis is found to pass by insensible gradations into the commonest phænomena of life. All life, in fact, is accompanied by incessant growth and metamorphosis; and every animal and plant above the very lowest attains its adult form by the development of a succession of buds. When these buds remain connected together, we do not distinguish the process as anything remarkable; when, on the other hand, they become detached, and live independently, we have agamogenesis. Why some buds assume one form and some another, why some remain attached and some become detached, we know not. Such phænomena are for the present the ultimate facts of biological science; and, as we cannot understand the simplest among them, it would seem useless, as yet, to seek for an explanation of the more complex.

Nevertheless, an explanation of agamogenesis in the *Aphis* and in like cases has been offered. It has been supposed to depend upon "the retention unchanged of some part of the primitive germ-mass," this germ-mass being imagined to be the seat of a peculiar force, by virtue of which it gives rise to independent organisms.

There are, however, two objections to this hypothesis: in the first place, it is at direct variance with the results of observation; in the second, even if it were true, it does not help us to understand the phænomena. With regard to the former point, the hypothesis professes to be based upon only two direct observations, one upon *Aphis*, the other upon *Hydra*; and both these observations are erroneous, for in neither of these animals is any portion of the primitive germ-mass retained, as it is said to be, in that part which is the seat of agamogenesis.

But suppose the fact to be as the hypothesis requires; imagine that the terminal chamber of the pseudovarium is full of nothing but "unaltered germ-cells," how does this explain the phænomena? Structures having quite as great a claim to the title of "unaltered germ-cells" lie in the extremities of the acini of the secreting glands, in the sub-epidermal tissues and elsewhere; why do not they give rise to young? Cells, less changed than those of the pseudovarium of *Aphis*, and more directly derived from the primitive germ-mass, underlie the epidermis of one's hand; nevertheless, no one feels any alarm lest a nascent wart should turn out to be an heir.

On the whole, it would seem better, when one is ignorant, to say so, and not to retard the progress of sound inquiry by inventing hypotheses involving the assumption of structures which have no existence, and of "forces" which, their laws being undetermined, are merely verbal entities.

#### ZOOLOGICAL SOCIETY.

February 23, 1858.—Dr. Gray, F.R.S., V.P., in the Chair.

LIST OF SPECIES OF MAMMALIA SENT FROM THE ARU ISLANDS  
BY MR. A. R. WALLACE TO THE BRITISH MUSEUM. BY  
DR. J. E. GRAY, F.R.S., V.P.Z.S., PRES. ENT. SOC., ETC.

Mr. A. R. Wallace has lately sent to Mr. Samuel Stevens a col-

lection of Mammalia and Birds from the Aru Islands, referred to in his paper on the Natural History of those islands in the 'Annals and Mag. Nat. Hist.' vol. xx. p. 473, 1857, which has been transferred to the British Museum, and forms a most important addition to the collection of that establishment.

His list does not contain a single Bat.

In the 'Zoology of the Voyage of H.M.S. Samarang' I gave a list of the Mammalia which had up to that period been found in New Guinea (p. 31); and in Dr. Müller's 'Verhandlingen' is a similar list.

Besides the animals sent home by Mr. Wallace from the Aru Islands, there are recorded in these lists—

1. DENDROLAGUS URSINUS.

*Dendrolagus ursinus*, S. Müller, Verh. 131, 141. t. 19. f. 22, 23.  
*Hypsiprymnus ursinus*, Temm. Faun. Japon.

2. DENDROLAGUS INUSTUS.

*Dendrolagus inustus*, S. Müller, Verh. 131, 143. t. 20, 22, 23.

3. DORCOPSIS ASIATICUS.

*Dorcopsis Brunii*, Müller, Verhand. 131.  
*Dorcopsis Asiaticus*, Gray, Voy. Sam. 32.  
*Filander* or *Kangaroo*, Le Brun's Voyage, i. 347. t. 213, 1714.  
*Didelphis Asiaticus*, Pallas, N. A. Petrop. 1777, 228. t. 9.  
*D. Brunii*, Gmelin.  
*Halmaturus Brunii*, Illiger, Prod.  
*Hypsiprymnus Brunii*, Müller, Verh. 63. t. 21-23.  
Island of Aru.

It is curious that this animal, described as specially inhabiting the island visited by Mr. Wallace, was not sent home by him. It is to be hoped that he did not neglect it, thinking it a common Kangaroo, as it is a desideratum in most museums in Europe.

The specimen of this animal in the Leyden Museum is said to be from the continent of New Guinea, where the two species of *Dendrolagus* and the *Antechinus melas* were also found.

4. PHASCOGALE (ANTECHINUS) MELAS.

*Phascogale (Antechinus) melas*, Müller, Verhand. t. 25. f. 1-3.  
From New Guinea.

Differs, according to the figure, in having the hair of the tail rather more elongated and spreading than the Australian species of the genus; the dentition is more nearly allied to the *Antechinus* than to the new genus *Myoictis* sent home by Mr. Wallace.

5. HALICORE AUSTRALIS.

*Halicore Australis*, Owen in Jukes's Voyage of the Fly, ii. 323. f. 135, 1847; Gray, Voy. Samarang, 33.  
*Hab.* Timor Straits.

6. *SUS PAPUENSIS*.

*Sus Papuensis*, Lesson, Voy. Coquille, t. ; Müller, Verh. t. .  
*Hab.* New Guinea. Called 'Bene.'

A species which has not yet reached England.

The following animals sent home by Mr. Wallace do not occur in the list ; indeed it does not contain a single Bat : viz.—

1. *Hipposideros Aruensis*.
2. *Pteropus argentatus*.
3. *Dactylopsila trivirgata*.
4. *Myoictis Wallacii*.

## VESPERTILIONIDÆ.

1. *PTEROPUS ARGENTATUS*.

Back white, with scattered black hairs ; beneath yellowish ; face grey, nakedish ; head deeper yellow-grey, with black interspersed hairs ; collar broad, bright red-chestnut, darker brown at the sides and under side, where the hair is longer, forming a kind of ruff ; ears and membranes (when dry) black.

*Hab.* Aru Island. Female.

"Back of a silky or silvery shining white, very beautiful in the freshly killed animals."—*Wallace*.

## HIPPOSIDEROS.

As M. Bonaparte has given the name of *Phyllorhina* to the European Horse-shoe Bats, I am inclined to restrict the genus *Hipposideros* to those species of the larger genus which have a large cavity opening with an expanding pore on the forehead behind the transverse hinder part of the nose-leaf ; they have distinct pubal teats ; thus restricting *Phyllorhina* to those which have a simple forehead without any pore.

2. *HIPPOSIDEROS ARUENSIS*.

Sooty-brown ; the lower half of the hairs of the back paler ; the hairs of the under side more uniform, or with rather paler tips ; the ears large, broad, rounded at the ends, with two hairy lines on the inner side of the front edge ; face and chin rather bristly, without any membranaceous ridges on the sides outside of the nose-leaf.

*Hab.* Aru Islands. "Male."—*Wallace*.

Length of head and body 2'' ; tail  $\frac{5}{8}$  ; expanse of wings  $5\frac{1}{4}$  ; length of upper arm bone  $1\frac{1}{2}$  ; length of shin bone  $\frac{5}{8}$  inch.

The ears sooty-black ; the front margin of the ears is broad, with a rounded lobe on the basal part near the forehead ; wings broad, thin, sooty-black, bald ; thumb slender, of two subequal joints ; the interfemoral membrane broad, truncate at the end ; the hind legs slender, rather elongate ; feet slender, enveloped in the membrane to the base of the slender equal compressed toes ; the heel-bones elongate, longer than the foot ; tail elongate, slender, attached and

extending a little beyond the end of the truncated interfemoral membrane.

Cutting teeth  $\frac{1-1}{4}$ ; upper large, chisel-shaped, separated by a small space from each other and from the canines; the lower small, crowded, three-lobed; canines conical; grinders — ?

The specimen is unfortunately rather injured about the face; but it appears quite distinct in form from any of the Horse-shoe Bats I have hitherto observed.

This species appears to be quite distinct from *Hipposideros speoris* of Timor, which is described as being a little larger than the larger English Horse-shoe Bat, *Phyllorhina bifer*; it has the following synonyma:—

*Vespertilio speoris*, Schneid. in Schreb. Säugth. t. 59 B.; Shaw, Zool. i. 147.

*Rhinolophus marsupialis*, Geoff. Cour. 1805.

*Rhinolophus speoris*, Geoff. Ann. Mus. xx. 261. t. 5. 266; Desm. N. D. H. N. xl. 368; Mam. 126; Fischer, Mam. 139.

*Rhinolophe cruménifère*, Péron & Lesueur, Voy. aux Terres Aust. Atlas, i. t. 35.

*Hab.* Timor (Péron and Lesueur).

It is certainly distinct from *Hipposideros insignis*, Gray, Mag. Zool. & Bot. ii. 492, the *Rhinolophus insignis*, Horsf. Java, *Vesp. cyclope*, Deschamps, MSS., from Java, which Fischer confounded with the former, and which has acute ears on the sides of the face, numerous lamellæ under the front part of the nose-leaf, and is  $13\frac{1}{2}$  inches in expanse of wings.

#### Fam. MACROPODIDÆ.

##### 3. CUSCUS MACULATUS.

*Phalanger*, male, Buffon, H. N. xiii. t. 11.

*Phalangista maculata*, Desm. N. D. H. N. xxv. 473; Quoy & Gaim. Voy. Astrol. t. 7.

*Cuscus maculatus*, Lesson & Garnot, Voy. Coq. Zool.

*Cuscus macrourus*, Lesson & Garnot, Voy. Coq. Zool. 150. t. 4.

Grey or black and white, variegated, without any dorsal streak.

*Hab.* Aru Island.

Two skulls, male.

The specimen sent is white, with scattered black spots, more abundant on the middle of the back and sides.

##### 4. CUSCUS ORIENTALIS.

*Cuscus Quoyii*, Lesson, Mam. 220.

♀ *Phalangista Quoyii*, Quoy & Gaimard, Voy. Uranie, Zool. 38 (t. 6? ?).

*P. maculata*, part., Waterhouse, Mamm. i. 274.

*P. Papuensis*, Desm. Supp. 341.

Brown, grizzled, with a few white-tipped hairs, with a narrow black dorsal streak.

*Hab.* Aru Island. "Female," young.

## 5. BELIDEUS ARIEL.

*Belidea Ariel*, Gould, Proc. Zool. Soc. 1842, x. 11.

*Petaurus sciureus*, Müller, Verhand. tabl.

*Hab.* Aru Island.

Female adult, with one young in the pouch.

## DACTYLOPSILA.

Tail elongate, slender, depressed, densely clothed with fur, with the exception of the under side near the tip, which is bald and callosous, the end rather bushy. Ears elongate, rounded, bald, except at the outer sides of the base. Pupil round? The fore-feet elongate; toes very slender, compressed, very unequal in length, quite free; the outer and third or middle toe nearly equal, the second much the longest, the fourth and fifth short, the fifth or innermost the shortest. The hind-feet slender, toes compressed, the two outer toes elongate, nearly equal, the two inner about half the length and united.

*Skull* (figs. 1, 2, 3) depressed, very broad, with very large expanded zygomatic arches; the face narrow, compressed and nearly erect on the sides, tapering in front; the palate narrow, concave. The cutting teeth  $\frac{4-4}{4-4}$ ; the upper front elongate, projecting in front, rather tapering and truncated at the tip; the second and third compressed, chisel-shaped, close together and to the front; the second small, the third larger; the fourth separated from the others by a small space and

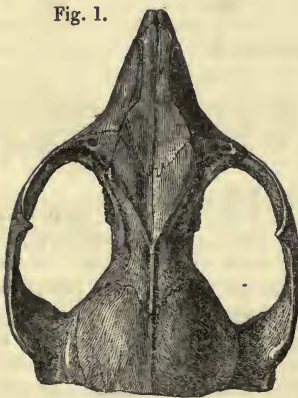


Fig. 1.

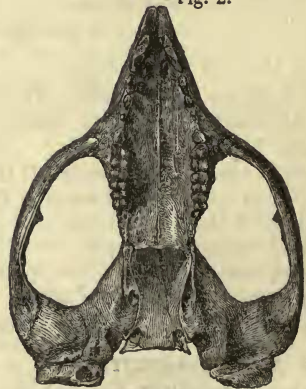
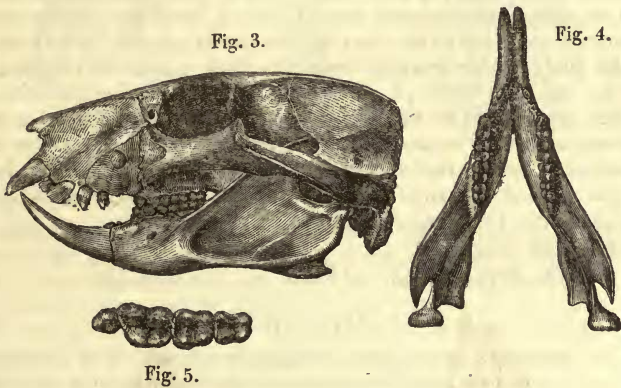


Fig. 2.

placed on the intermaxillary suture, compressed, curved rather like a canine; the lower front very long, projecting in front, curved, rather tapering at the tip; the second, third and fourth small, truncated, separated from each other; the second largest, close to the base of the front tooth; the third small, separated from the second by a small space; the fourth very small, far from the other; and at the base of the front edge of the first grinder; in the space between the

third and fourth on the right side of the jaw, is a cavity which appears to have been filled with a tooth like the third one, but there is no appearance of the tooth or cavity on the other side. Canines?  $\frac{1-1}{0-0}$ , upper small, compressed, conical, tapering like, but smaller than, what I have called the hinder cutting teeth (fig. 3). Grinders  $\frac{5-5}{4-4}$ , small, in two nearly straight lines parallel to each other, and the hinder ones in each jaw rather smaller than the front ones; the front upper small, triangular; the others four-sided and square, with four tubercles, the outer front tubercle of the second tooth being rather larger than the rest, which are nearly equal among themselves, and the front lower grinder has only one larger tubercle in the place of the two in the others (figs. 4, 5).



This genus is very distinct from the other genera of *Phalangistina*, in the elongated and depressed form of the tail, the formation of the fore-feet, and especially in the disposition and form of the teeth, as well as in the broad depressed skull.

The following observations may assist in showing the value of these characters.

In *Cuscus* the fingers are rather longer than in *Hepoona*, and the third or middle finger is the longest, the others becoming gradually shorter on each side.

In *Phalangista* proper (that is *Trichosurus* of Mr. Waterhouse) the fingers are moderately long, the second and third are the longest and equal, the fourth longer than the first, and the fifth or inner one the shortest.

The hand of the *Hepoona* is very like that of *Phalangista*, both in the proportion and form of the fingers; but the two inner fingers are rather separated and opposable to the other three.

The tail, though covered with hair, is very unlike those of the genera *Hepoona* and *Phalangista*, and is more like that of a squirrel, but not so bushy; in *Hepoona* it is tapering and covered with shortish hair, and has a slender tip; in the more perfect specimen

of *Phalangista* it is cylindrical and equally covered with hair on all sides.

In *Hepoona* and *Phalangista* the grinders are placed in arched series, and they are much larger compared with the size of the skull than in this genus, and the hinder grinders are larger than the front ones; the front grinder in the upper jaw is larger, more elongate, and compressed.

#### 6. DACTYLOPSILA TRIVIRGATA.

White; three broad black stripes on the back, the outer ones commencing on the side of the nose, enclosing the eyes, and continued along the side of the back; the central one commencing on the crown and continued to the end of the tail, being narrower at the base of the tail: a large black square spot on each side of the chin, separated by a narrow central line; a large spot on the upper surface of each leg; the sides of the throat greyish, and the sides of the body rather greyish from the dark colour of the base of the fur on that part of the body; the tip of the tail whitish, and the under part of the upper surface near the tip, with a narrow streak ending some way down the middle of the under side of the tail, black; the under side of the tip of the tail is bald, but scarcely callous; the feet flesh-coloured, with few scattered short whitish hairs; the ears nakedish, black when dry.

*Hab.* Aru Island.

A female: lives on fruit. "Teeth  $\frac{20}{18}$ ." (*Wallace.*)

#### MYOICTIS.

Head tapering; nose acute; whiskers strong. Tail depressed, tapering, clothed with rather elongated hairs above and on the sides; the under side flat, nakedish. Feet moderate; soles bald to the heel; toes 5.5, free, compressed; claws acute; first and fifth front toes equal; second, third and fourth toes equal, longer; hinder toes free, weak, distinct, clawless; thumb of hind-foot larger. Ears roundish, nakedish. Scrotum pendulous.

Cutting teeth  $\frac{4-4}{6}$ ; the upper with a central space in front between them, in a close series on each side, and with a small interspace between them and the canines; the first tooth very small, hidden in the gums, the others all equal, lancet-shaped, rather crowded; the lower forming a continued series, shelving forward, all lancet-shaped, subequal; the front rather the longest and narrowest; the hinder rather broader.

Canines  $\frac{1-1}{1-1}$ , conical; the upper not quite developed, only slightly produced above the level of the other teeth; the lower small, conical, scarcely raised above the other teeth (figs. 8, 9).

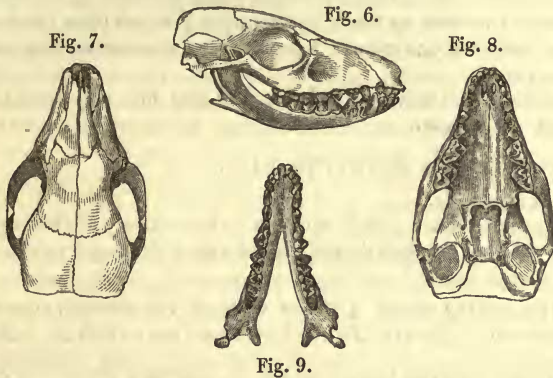
False grinders,  $\frac{2-2}{2-2}$ , conical, compressed; the lower with a very obscure, the upper with a rather more distinct, conical tubercle on the front and hinder edge (figs. 8, 9).

True grinders  $\frac{2-2}{3-3}$ ; the upper large, triangular, acutely lobed;

the lower compressed, very acutely lobed; the middle one in each jaw the largest.

The angle of the lower jaw is produced, elongate and strongly inflexed, as is usual in *Marsupialia*.

Skull: length, 1 inch 3 lines; width, all the zygomatic arch, 9 lines; length of the tooth-line 9 lines. Length of the lower jaw  $11\frac{1}{2}$ , of symphysis  $4\frac{1}{2}$ , of tooth-line  $7\frac{1}{2}$  lines (figs. 6-9).



This genus is peculiar, because, as far as the dentition is concerned, there is no character by which we should have determined that it was a Marsupial animal; but the form of the angle of the lower jaw at once shows its true affinity to that group. It was not until a most careful examination of the space between the front upper cutting teeth, that I could find any indication of the front pair of cutting teeth found in the allied genus *Antechinus*.

This genus is evidently allied to the genus *Antechinus* of Australia; but it is known at once by its external form, which is just that of a small Indian *Herpestes* or *Ichneumon*, having like that genus a depressed tail with long spreading hair, broad and depressed at the base, tapering to an acute tip which bears a pencil of hairs.

#### 7. MYOICTIS WALLACII.

Rusty-brown, with interspersed black longer hairs; head redder; throat, chest and belly pale reddish; side of the neck at the base of the ears bright reddish; ears, and the greater part of the tail bright red-brown; tip of the tail black.

*Hab.* Aru Island.

Male.

“In houses as destructive as rats to every thing eatable.

“Teeth 34:—Inc.  $\frac{6}{6}$ ; C.  $\frac{1-1}{1-1}$ ; Prem.  $\frac{2-2}{2-2}$ ; M.  $\frac{2-2}{3-3}$ .”—Wallace.

#### 8. PERAMELES (ECHIMIPERA) DOREYANUS.

*Perameles Doreyanus*, Quoy & Gaimard, Voy. Astrol. Zool. i. 100. t. 16. f. 1-5; Waterhouse, Mamm. i. 386.

*Echymipera Kalulu*, Lesson, Règne Anim. 192.

Tail naked, rugose, squamose, wrinkled below. Toes 3·5: the



two inner front large, equal; the outer small; the inner hind toe short, clawless; the two index fingers small, united, clawed.

*Hab.* Aru Island.

Female.

“The skin is very thin and friable.

“Teeth 46:—Inc.  $\frac{8}{6}$ ; C.  $\frac{1-1}{1-1}$ ; Prem.  $\frac{3-3}{3-3}$ ; M.  $\frac{4-4}{4-4}$ .”—*Wallace*.

This enumeration agrees with that given by MM. Quoy and Gaimard, being two cutting teeth in the upper jaw less than are found in the other species of the genus; hence Lesson considered it as forming a distinct genus.

The outer and inner toes of the fore-feet are very small, rudimentary and clawless.

#### 9. PARADOXURUS HERMAPHRODITA.

*Hab.* Ké Islands.

Is in the collection: it only appears to be a variety of the very variable and extensively distributed *Paradoxurus hermaphrodita*.

#### ON APHROCALLISTES, A NEW GENUS OF SPONGIADÆ FROM MALACCA. BY DR. JOHN EDWARD GRAY, F.R.S., V.P.Z.S.

In 1842 we received from Captain Sir Edward Belcher a Sponge which he obtained in Malacca, which evidently forms a new genus nearly allied to the *Euplectella* of Professor Owen. I therefore have great pleasure in bringing a description of it before the Society.

#### APHROCALLISTES.

The sponge cylindrical, tubular, branched; the end of the main tube closed with an open network formed of spicula; branches cylindrical, simple, rarely bifid, rounded and closed at the end; the inner surface of the tube with large unequal-sized concavities placed in longitudinal series, having a large roundish oscule near its lower edge.

The sponge hard, calcareous, with uniform, close, equal, regular hexangular pores on the surface, and larger round ostioles in series on the sides of the main tube. The outer surface formed of intertangled transparent spines, which inosculate and unite with each other at their intersections, forming a hard, rather brittle crust. The inner surface lined with a coat of fusiform transparent spicula, which are placed in bundles parallel to each other in the spaces between the roundish internal apertures of the crowded small superficial pores.

This genus is very like *Euplectella* of Professor Owen in its external form, and especially in the upper part of the tube being closed with network.

It differs from that genus in being more irregularly formed and branched, and in the structure and calcareous composition of the sponge itself.

In that genus the basis of the tube is formed of ropes of elongated spicula placed at right angles longitudinally and transversely to the

axis of the tube, and covered with a more or less thick coat of smaller spicula. In this genus the mass of the sponge is formed of small spicula, which inosculate and are united together, forming a rather hard mass pierced with numerous closed, small, uniform hexangular pores, lined internally with a thin layer formed of elongate fusiform spicula placed parallel in bundles in a more or less longitudinal direction round the inner mouth of the pores.

The main tube is smaller at the base, gradually enlarges upward, and is then subcylindrical and irregular on the surface.

When examined externally, eight or ten longitudinal ridges are observed, between which are placed a more or less regular series of unequal-sized squarish concavities; at the lower edge of each is to be observed a large round oscule, commencing with the outer surface.

#### APHROCALLISTES BEATRIX.

*Hab.* Malacca.

We have in the British Museum an imperfect specimen of *Euplectella*, which was brought home by Capt. Sir Edward Belcher at the same time as the above.

March 9, 1858.—Dr. Gray, F.R.S., V.P., in the Chair.

#### ON SOME NEW OR LITTLE-KNOWN SPECIES OF ACCIPITRES, IN THE COLLECTION OF THE NORWICH MUSEUM. BY PHILIP LUTLEY SCLATER, M.A.

At the request of Mr. J. H. Gurney, I exhibit to the meeting some interesting birds belonging to the fine series of specimens of the order Accipitres, which that gentleman has collected for the Norwich Museum. Among them appear to be several new or little-known species, concerning which I beg to offer the following remarks:—

##### 1. URUBITINGA SCHISTACEA.

*Asturina schistacea*, Sund. Ofv. Af. K. Vet. Ak. Förh. 1849, p. 132.

*Falco ardesiacus*, Licht. in Mus. Berol.

*Morphnus schistaceus*, Sclater, P. Z. S. 1857, p. 261.

♂ *adultus*. *Totus nigro-cinerascens: cauda nigra, fascia media angusta margineque apicali albis: orbitis subnudis: rostri apice nigra, hujus basi cum pedibus flavis.*

Long. tota 16·0, alæ 11·0, caudæ 7·0, rostri a rictu 1·4, tarsi 3·3.

Sundeval has given an excellent description of this bird, which does not appear to have been recognized by any other writers except Prince Bonaparte. By this author it is alluded to in an article entitled "Revue générale de la classe des Oiseaux," in the 'Revue et Mag. de Zool.' for 1850, p. 474, and again in the 'Comptes Rendus' for 1855, under the specific name *ardesiacus*, the synonym "*Falco ardesiacus*, Licht. in Mus. Berol." being said to refer to it.

Of the two examples of this species belonging to the Norwich Museum, one was procured by Mr. H. W. Bates\* on the Rio Javari—a branch of the Upper Amazon; and the other, I have no doubt, from the ticket with which it is labelled, is from the interior of Bolivia. So we may conclude that the interior wood-region of Peru and Bolivia is the natural *habitat* of this species.

There are at least three birds of this group which are in their adult plumage slaty-black or blackish, with a white bar across the tail. The first of these and largest in size is the *Falco urubitinga* of the older authors. Lesson in 1839 proposed to convert the term *Urubitinga* into a generic name, and it was so adopted by Lafresnaye in 1842, before the creation of Cabanis's genus *Hypomorphnus* for the same type. See M. de Lafresnaye's remarks on this subject in the 'Revue Zoologique' for 1848, p. 240. With regard to the specific name to be employed for this bird, we cannot use Brisson's "*brasiliensis*," as is done in Strickland's 'Ornithological Synonyms,' because Brisson's† names are not to be employed in a binominal system of nomenclature. Nor is it proper to adopt Illiger's MS. term "*longipes*," as proposed in Prince Bonaparte's 'Conspectus,' while there are many other names for this bird already published. So the earliest specific name available seems to be Shaw's *zonurus* (*Falco zonurus*, Shaw's Zool. vii. p. 62), and this species should stand as *Urubitinga zonura*. It appears to have an extensive range, extending from Paraguay, all over Bolivia, Peru, Brazil, Guiana and New Granada into Southern Mexico, where specimens were obtained by M. Sallé.

The second allied species of *Urubitinga* is the "*Falco anthracinus*, Licht. in Mus. Berol.," under which name it is described by Nitzsch in a note to his 'Pterylographie' (p. 83). This is the same as Du Bus's *Morphnus mexicanus* (Bull. Ac. Brux. 1847). See M. de Lafresnaye's observations in the 'Revue Zoologique' for 1848 (p. 240), where he clearly points out the differences between this bird and the *Urubitinga zonura*. The *Urubitinga anthracina* inhabits the northern portion of South America, Guiana‡ and New Granada§, Guatemala and Southern Mexico||, where MM. Botteri and Sallé both procured it, and M. Du Bus's types were collected. The third species is *Urubitinga schistacea* as characterized above, which is distinguishable at once from the preceding by its inferior size and narrower tail-band. The following diagnoses are sufficient to point out the differences between these three species ¶:—

1. *U. zonura*. *Major, caudæ dimidio basali et margine apicali albis.*

\* See P. Z. S. 1857, p. 261.

† See British Association's Report on Zoological Nomenclature, rule 2, p. 5.

‡ Schomburgk, Reisen in Britisch Guiana, iii. p. 740.

§ MM. Verreaux have received examples from Santa Martha.

|| See P. Z. S. 1857, pp. 211 & 227.

¶ A fourth black *Urubitinga*, allied to *U. anthracina*, has lately been described by Cabanis from Cuba under the name *Hypomorphnus Gundlachii*. See Cab. Journ. f. Orn. 1854, Erinnerungs-heft, p. lxxx.

2. *U. anthracina*. *Media, caudæ fascia lata et margine apicali albis.*

3. *U. schistacea*. *Minor, caudæ fascia angusta et margine apicali albis.*

Such are these birds in their adult plumage: in their immaturity they are quite different. I have not yet seen the young of *U. schistacea*, as I now think the specimen in one of Sallé's Mexican collections called *Morphnus schistaceus*, juv. (P. Z. S. 1857, p. 227) does not really belong here; but the other two species in their immature state are both irregularly flammulated on the lower surface and back, and have numerous buffy-white cross-bars on the tail and under tail-coverts. Specimens of *U. zonura* in this state are in the British Museum, and we have a fine example of a similar bird now alive in our Gardens.

I have hitherto used for these birds the generic term *Morphnus*, following Mr. G. R. Gray and other writers; but on considering that the true type of *Morphnus* is the *Falco guianensis* of Daudin—a bird of different structure and more nearly allied to *Thrasaëtus*—I think they stand better disconnected. But the *Falco unicinctus* of Temminck and *Falco meridionalis* of Latham—two allied species—for which Kaup's term *Spizigeranus* may be employed subgenerically—ought, as M. de Lafresnaye\* has observed, to come close to the true *Urubitingæ*; and *Buteogallus* with its two species (*æquinocialis* and *nigricollis*) follows next. A bird more closely corresponding to the *Urubitingæ* in its changes of colouring is *Urubitornis solitaria*, of which M. Jules Verreaux has described the several stages of plumage in the Society's 'Proceedings †; ' but it is distinguishable by its shorter and much more robust tarsi.

## 2. BUTEO ZONOCERCUS, sp. nov.

*Schistacescenti-niger unicolor, alis extus brunnescente tinctis: remigum pogonæ interioribus albo obsolete transfasciatis: cauda nigra; vitta inferiore lata, et alteris duabus superioribus angustioribus et imperfectis cum margine apicali albis: rostro nigro, cera aurantia, pedibus flavis.*

Long. tota 17·0, alæ 14·7, caudæ 7·5, rostri a rictu 1·3, tarsi 2·9.  
*Hab.* Guatemala.

In plumage this bird is very much like the typical *Urubitingæ*, being of a nearly uniform ashy-black, tinged with brown on the scapularies and secondaries, and with a broad white band across the tail. Above this are two other bands, much narrower and not quite complete, and the tail is likewise tipped with white. The colour of these bands is pure white on the under surface; on the upper surface it is cinereous on the outer webs of the lateral rectrices, and on both webs of the medial pair, but pure white on the inner webs of the lateral tail-feathers. The lowest band is about  $1\frac{3}{4}$  inch in breadth, the second not half an inch, and the highest is quite narrow. There are distinct traces of white cross-bands on the inner

\* Rev. Zool. 1848, p. 240.

† See P. Z. S. 1856, p. 145.

webs of the wing-feathers. The wings are, however, much more elongated than in the *Urubitingæ*, the third primary (which is longest) extending 4 inches beyond the secondaries. The fourth and fifth primaries are only slightly shorter than the third, the first being nearly of the same length as the longest secondary. The general form seems to be that of the *Buteones* appertaining to the subgenus called *Tachytriorchis*, and the nearest ally of the present species among the specimens of the British Museum appears, as has been pointed out to me by Mr. G. R. Gray, to be his *Buteo albonotatus* (Cat. Accipitres [1848], p. 36). This latter bird does not appear to me to differ from Cabanis's *Buteo abbreviatus*, described in Schomburgk's 'Reisen in Britisch Guiana,' vol. iii. p. 739, and I should be inclined to consider the two names as synonymous.

### 3. SYRNIUM ALBITARSE, sp. nov.

*Syrnium albotarse*, G. R. Gray in Mus. Brit.

*Supra brunnescenti-nigrum, plumis omnibus pallido rufo semel aut pluries late transfasciatis; pileo unicolore nigricante, plumis subtus pallide rufis: alis caudaque nigricantibus; remigum pogoniis exterioribus quinque sive sex maculis quadratis pallide rufis marginatis; rectricibus vittis quinque et altera terminali latiore supra pallide rufis, subtus magis albidis apparentibus transfasciatis: facie, loris, mento et plumis supra-ocularibus albis: subtus pure album, rufescente mixtum, plumarum terminationibus latis interdum etiam scapis saturate brunneis; tibiis et tarsorum parte superiore rufis, horum parte inferiore albis: rostri plumbei apice flava, pedibus fuscis.*

Long. tota 15·0, alæ 11·0, caudæ 6·5, tarsi 1·9.

The name of this Owl was inserted in the list of specimens of Accipitres in the collection of the British Museum published in 1848; but no description of it has yet appeared. The type in the British Museum is immature, and nearly agrees with one in my own collection. Mr. Gurney's specimen, from which my description is taken, appears to be nearly adult. All these three examples were received in collections from Bogota, and they are the only individuals of this species that I have yet met with. The face of this bird is white; the head above brownish-black outside, with the bases of the feathers bright rufous. The whole upper surface is brownish-black varied with this rufous colouring, every feather being crossed with a broad subterminal band of rufous, sometimes with a second, and these bands being occasionally incomplete in the middle across the shaft. The primaries and secondaries are marked externally with rather square-shaped rufous spots, four or five in number. The tail has five cross-bands besides the terminal one formed in the same way, which bands appear whitish on the lower surface. Below, the colouring is creamy-white tinged with pale rufous, the breast-feathers, particularly on the sides, having broad terminations of black-brown, the belly-feathers narrower terminations and also lateral margins of the same colour. The tarsi are creamy-white with

a yellowish tinge in both my specimens, more nearly pure white in that in the British Museum. They are thickly feathered down to the fissure of the toes. The form is that of other South American *Syrnia*, the fourth and fifth wing-feathers being equal and longest, only slightly exceeding the third. The specimen which I take for the younger bird only differs in having the head varied like the back, and being generally more rufous.

#### 4. SCOPS USTA, sp. nov.

*Supra saturate castaneo-brunnea, plumis omnibus nigro subtilissime vermiculatis: facie et gula pure castaneo-brunneis, hac pallidiore: linea post regionem auricularem, cornuum capitibus extantium marginibus latis et pileo supero nigris: alarum pennis pallide castaneo-brunneis nigro punctulatis, intus autem ochraceo-albidis, quinque aut sex fasciis latis in pogonio externo, maculas quadratas efficientibus, nigris transvittatis; cauda ex eodem colore sed fasciis nigris pæne obsolete: subtus clarius brunnea, lineis angustis longitudinalibus, scapas plumarum occupantibus, nigris parce notata: tectricibus alarum inferioribus sordide albis: tarsis pallide fulvis: rostro et pedibus flavis.*

Long. tota 8·5, alæ 7·0, caudæ 4·0, tarsi 1·2.

*Hab.* Ega on the Upper Amazon (H. W. Bates).

This species is distinguishable from every other South American member of the genus, as far as I am acquainted with them, by its rich brown colouring above and below, and by the longitudinal lines below not being crossed as in *Scops choliba* and *S. atricapilla*.

#### REMARKS ON THE BRITISH ACTINIADÆ, AND RE-ARRANGEMENT OF THE GENERA. BY W. THOMPSON.

Observations extending over many years, on the characters and the habits of the British species, clearly proved to me that the genera of British *Actiniæ* required great alterations; and I submit the present classification as an improvement on those hitherto adopted.

It is well understood that the principal generic characters are derived from modifications and differences existing in the tegumentary system and in the tentacula. Dr. Johnston, in his 'History of British Zoophytes,' published in 1847, made but one British genus, *Actinia* of Linnæus, and in this he included all known British species; but he divided it into two sections or subgenera, the one characterized by having the skin smooth, the other by having the skin covered with porous warts. Mr. Gosse, in a paper read before the Linnæan Society in the early part of 1855, divided the family into three genera; namely, *SAGARTIA*, destitute of warts, and emitting filaments from pores; *BUNODES*, studded with warts, and without pores and filaments; and *ACTINIA*, having a perfectly smooth skin, and destitute of warts, pores or filaments. The character arising from the presence or absence of filaments is not of very great weight,

inasmuch as the presence of filaments depends entirely on the presence of pores in the skin, and through which they are extruded; consequently, when there are no pores there are no filaments.

These genera comprised species possessing characters so different from each other, and so well established, that I found they must not remain united. For instance, the genus *Sagartia* included, amongst others, *A. dianthus*, *A. bellis* and *A. parasitica*; but although the characters were useless as generic distinctives, yet they appear to me to be of sufficient importance to be used as characters for the division of the *Actiniadæ*, and I have accordingly used them for that purpose.

On examining Milne-Edwards's 'Histoire des Corallières,' I was pleased to find that my views on this point were in accordance with those of that naturalist, he having divided the family into three sections, which he calls respectively *Smooth Actinia*, *Warty Actinia*, and *Perforated Actinia*, or with pores, each being equal to one of Mr. Gosse's genera and my subdivisions. The true generic characters of the *Actiniadæ* are to be found (as I have already mentioned) in the integuments and in the tentacula; these latter, although varying with age, are yet constant in form and number in adults of the same species. From these characters amongst others, I had divided the family into eight genera (exclusive of *Anthea* and *Adamsia*), of which the types were *Actinia equina*, *A. gemmacea*, *A. clavata*, *A. bellis*, *A. viduata*, *A. dianthus*, *A. parasitica* and *A. coriacea*; and these I named respectively *Actinia*, *Bunodes*, *Cyrtactis*, *Heliactis*, *Sagartia*, *Actiniloba*, *Aster*, and *Cribrina*. My divisions and genera were formed from examinations of British species only, and I was not a little surprised to find that they so closely accorded with Milne-Edwards's labours, founded as they are on an examination of all described species. The only genus containing a British species that I have not verified is his genus *Dysactis*, in which he includes *A. biserialis*. This species, however, was described by the late Professor Forbes as occurring plentifully on the shores of the island of Herm; I have therefore admitted it as a genus on the authority of Milne-Edwards. The British species are distributed amongst six of his genera, namely, *Metridium*, *Actinia*, *Paractis*, *Dysactis*, *Cereus*, and *Adamsia*; of these, *Actinia* is the same as mine, *Paractis* I have used in lieu of *Sagartia*, and *Dysactis* I also admit unaltered—they are represented by *Actinia equina*, *Actinia viduata*, and *Actinia biserialis*. My genus *Actiniloba* is the same as his genus *Metridium*, and includes *Actinia dianthus*. I retain *Actiniloba*, as being the most characteristic name. His genus *Cereus* includes *A. coriacea*, *A. gemmacea*, *A. clavata* and *A. bellis*; these species, it was quite evident, could not be included in one genus; indeed M.-Edwards divides his genus *Cereus* into several sections, *A. coriacea* being in one section, *A. gemmacea* and *A. clavata* in a second, and *A. bellis* in the third. Restricting, therefore, his genus *Cereus* to *A. gemmacea*, instead of retaining Mr. Gosse's name *Bunodes*, I retain my division of the remainder of the species under the generic names of *Cribrina*, *Cyrtactis* and *Heliactis*. His genus *Adamsia* includes *Actinia parasitica* and *Adamsia palliata*,

two very dissimilar species. No one, I am sure, who has ever seen these Polypes would imagine for an instant that they can possibly belong to the same genus; and indeed the fact that *Adamsia palliata* secretes a horny base, an incipient polypidom, induces me to suggest the necessity of forming on its characters a distinct family. I have therefore constituted a genus for the reception of *Actinia parasitica*, and withdrawing the suggested name *Sagartia* from the genus that will now stand as *Paractis*, I have transferred it to this genus. The genus *Adamsia* I at present retain under the family *Actiniadæ*; and without entering into the question in this paper as to its proper position, I would suggest that it will eventually be placed between the Polypes that secrete a polypidom and those without a polypidom.

Of late years *Adamsia palliata* has so decreased in this locality, that I have seen but one since the severe winter some three or four years ago; this was given me in September last by my friend Mr. Busk, and is still alive and well in one of my tanks, but too valuable to submit to the dissecting knife. I trust this summer to obtain other specimens, when I hope to settle its proper position amongst the Anthozoa.

As regards species, I refrain from touching on that point in the present paper, but purpose doing so at an early period, when a careful examination of a larger number of individuals shall enable me to speak with authority as to which are *bonâ fide* species and also those that are merely varieties. The rage for marine vivaria has thrown many useless workers into the field; and I much fear that what may possibly tend to a love of nature does not always as a matter of course advance science. The improper multiplication of species is a serious injury to the well-being of Natural History; and, I must admit, I should like to see a council formed of five, ten, fifty, or any number of the most celebrated naturalists, and that no new species or arrangement should be published without their consent being first obtained. This would effectually prevent varieties and deformities creeping in as species, and objects already described and known being reproduced as new species, or, may be, even as new genera.

Proposed rearrangement of British Actiniadæ, with a revision of the genera:—

#### ANTHOZOA, Owen.

Body soft, contractile, in every part symmetrical. Tentacles hollow, possessing thread-cells, and in most with pectinated margins, in uninterrupted circles or groups. Stomach suspended by radiating mesogastric folds in an abdominal cavity. No intestine; mouth and vent generally one, placed in the centre of the upper disk, very dilatible. With or without polypary; when present usually internal.

#### *Without polypary.*

#### ACTINIADÆ.

Free and solitary, or gregarious. Tentacles simple, rarely branched



or clavate, more than twelve, often in more than one row in uninterrupted circles. Body single, fleshy, elongate or conical, fixed by its base, and generally with the power of locomotion. Base broad and adherent.

A. *Body without warts or pores; skin smooth.*

ANTHEA, Johnston.

Body adherent, cylindrical, smooth, without tubercles on the edge of disk. Tentacles numerous, elongated, taper, flaccid, scarcely retractile, longer than diameter of disk.

Type, *Anthea cereus*.

ACTINIA, Linnæus.

Body smooth, conoid or cylindrical. Tentacles numerous, in one or more uninterrupted circles, conical, undivided, subequal and entirely retractile, shorter than diameter of disk; margin of upper disk furnished with a row of tubercles.

*Actinia mesembryanthemum*.

PARACTIS, M.-Edw.

Body smooth, conoid or cylindrical. Tentacles few in number, in one or more uninterrupted circles, conical, undivided, subequal, filiform, very long. No tubercles on the edge of the upper disk.

*Actinia viduata*.

DYSACTIS, M.-Edw.

Tentacles forming two distinct circles, continuous at their base, those of the inner row three times as long as the outer row, numerous, short and subequal. Margin of disk without tubercles.

*Actinia biserialis*.

B. *Body studded more or less with verruciform tubercles or sucking-glands.*

CRIBRINA, Ehrenb.

Body studded with glandular warts irregularly placed, suctorial, distributed over the whole surface of the body. Tentacles short, thick, obtuse, subequal, very numerous.

*Actinia coriacea*.

CEREUS, M.-Edw.

Body with glandular warts placed in vertical lines and unequal. Tentacles not numerous, chiefly marginal, much spread and bent, conical, rather stout; length about equal to diameter of disk.

*Actinia gemmacea*.

CYRTACTIS, mihi.

Body rough, with sucking-glands in close-set perpendicular ridges or vertical rows, and all equal, the whole height of the body. Centre

of disk much more raised than the edges. Disk greater in diameter than the pillar of the body. Tentacles long, moderately slender, generally horizontal to the disk, mostly marginal, their tips constantly curled back.

*Actinia clavata.*

#### HELIACTIS, mihi.

The glandular warts placed only on the upper portion of the body. Tentacles very numerous, short, varying in length, crowded towards the edge of the disk, and of moderate thickness; oral disk much expanded.

*Actinia bellis.*

C. *Body without glandular warts, and with pores for the passage of thread-cells.*

#### ACTINILOBA, Blainv.

Skin soft; disk very large. Tentacles very numerous, short, varying but little in length, and forming a thick filamentous fringe; margin of disk lobed.

*Actinia dianthus.*

#### SAGARTIA, Gosse.

Skin coriaceous, occasionally wrinkled, firm to the touch. Tentacles numerous, not particularly long, retractile, having great power of elongation. Base broad and circular. Body cylindrical. Pores situated near the base, and varying in size. Parasitic.

*Actinia parasitica.*

#### ADAMSIA, Forbes.

Skin soft. Tentacles scarcely retractile, short. Base when young circular, afterwards expanding laterally until the extreme points meet, and form a circle. Disk circular or oblong according to the form of the base. Base secreting a horny membrane. Body much depressed, not cylindrical.

*Adamsia palliata.*

### MISCELLANEOUS.

*The Animals of Millepora are Hydroid Acalephs, and not Polyps.*

By Prof. AGASSIZ (from recent letters to J. D. DANA).

“I HAVE seen in the Tortugas something very unexpected. *Millepora* is not an Actinoid polyp, but a genuine Hydroid, closely allied to *Hydractinia*. This seems to carry the whole group of Favositidæ over to the Acalephs, and displays a beautiful array of this class from the Silurian to this day.”

The drawings of Professor Agassiz which have been sent us for examination are so obviously *Hydractinæ* in most of their characters, that no one can question the relation. With regard to the reference of *all* the Favositidæ (a group including *Favosites*, *Favistella*, *Pocil-*